

Interactive comment on “Mid-level clouds are frequent above the southeast Atlantic stratocumulus clouds” by Adeyemi A. Adebiyi et al.

Anonymous Referee #1

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Summary

This analysis uses several observational data sets, including aircraft observations from ORACLES, as well as CLAIPSO and CloudSat, to identify and quantify mid-level clouds off the coast of South Africa. Although low-level clouds (stratocumulus) in this region have received considerable attention, particularly in relation to smoke aerosols, mid-level clouds have not been properly investigated. The authors find that the occurrence of such mid-level clouds is relatively common, and go on to explore the meteorological causes, which includes synoptically-modulated continental moisture outflow. Finally, the authors quantify the corresponding radiative impacts of the south Atlantic mid-level

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clouds.

Comments

Overall, the paper is very well written and the analysis is comprehensive and novel. My only comments pertain to model simulations, which were not part of this analysis. How well do models simulate these observed mid-level south Atlantic clouds? Can the results of this paper be used to understand possible model biases, and ultimately, improve model simulations in regard to this feature?

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